

REMARKS

At the outset, Applicant thanks the Examiner for the thorough review and consideration of the subject application. The Non-Final Office Action of November 6, 2003 has been received and its contents carefully reviewed.

Claims 1-20 remain pending in the present application, where Applicant has amended claims 2 and 3. In view of the following remarks, Applicant requests consideration and allowance of the claims.

In the Office Action, the Examiner objected to the drawings, specifically stating that Figure 1 should be designated by a legend such as "Prior Art." Applicant hereby amends Figure 1, designating it as "Prior Art", and respectfully requests that the present objection to the drawings be withdrawn.

In the Office Action, the Examiner rejected claims 1, 2, 4-10, 12-15, 19, and 20 under 35 U.S.C. as allegedly being unpatentable over Sibru et al. (U.S. Patent No. 6,542,531) in view of Sun (U.S. Patent No. 6,144,682). This rejection is respectfully traversed and reconsideration is requested.

Applicant respectfully submits that claim 1 is patentable over Sibru et al. in view of Sun in that claim 1 recites "growing a fast GaAs layer on the InP layer at a temperature of between 400-450 °C; growing a second GaAs layer on the fast GaAs layer at a temperature of about 600 °C...." Neither Sibru et al. nor Sun, singly or in combination, teaches or suggests at these steps of the claimed invention.

In rejecting independent claim 1, the Examiner cites Sibru et al. as failing to disclose "a first GaAs layer and a second GaAs layer." Attempting to cure this deficiency, the Examiner relies upon Sun as allegedly disclosing "a first GaAs layer 124 and a second GaAs layer 128."

Applicant respectfully submits that claim 1 does not recite "first and second GaAs layers." Rather, claim 1 requires among other steps, growing a fast GaAs layer on the InP layer at a temperature of between 400-450 °C and growing a second GaAs layer on the fast GaAs layer at a temperature of about 600 °C. Moreover, Sun fails to teach, for example, growing a fast

GaAs layer on the InP layer at a temperature of between 400-450 °C and growing a second GaAs layer on the first GaAs layer at a temperature of about 600 °C, as presently claimed. What Sun does teach, at column 2, lines 59-64, is that “[a] p⁺-GaAs cap layer 124 is deposited on top of the Al_{0.4}Ga_{0.6}As layer 122. The cap layer 124 is 16 nm thick and doped with magnesium to a doping level of $1 \times 10^{19} \text{ cm}^{-3}$” Moreover, at column 3, lines 1-6, Sun teaches “[a] second p⁺-GaAs layer 128 is deposited on top of the AlAs layer 126. The second GaAs layer 128 is 86 nm thick and doped with magnesium to a doping level of $1 \times 10^{19} \text{ cm}^{-3}$” Accordingly, even if Sibru et al. teaches what the Examiner says it teaches, Applicant respectfully submits that neither Sibru et al. nor Sun, singly or in combination, teaches or suggests, all of the requirements associated with the aforementioned method steps set forth in claim 1. Therefore, Applicant requests withdrawal of the present rejection under 35 U.S.C. § 103(a).

Claims 7 and 12 recite features similarly recited in claim 1. Specifically, claims 7 and 12 recite a first GaAs layer on said InP layer, wherein said first GaAs layer is formed by MOCVD at a temperature between 400-450 °C; and a second GaAs layer on said first GaAs layer, wherein said second GaAs layer is formed by MOCVD at a temperature of around 600 °C. Accordingly, for reasons discussed above with respect to the rejection of claim 1, it is respectfully submitted that neither Sibru et al. nor Sun, singly or in combination, teaches or suggests at least the aforementioned features set forth in claims 7 and 12. Therefore, Applicant requests withdrawal of the present rejection under 35 U.S.C. § 103(a).

For at least the reasons set forth above, Applicant respectfully contends that independent claims 1, 7, and 12 as well as claims 2, 4-6, 8-10, 13-15, 19, and 20, which variously depend therefrom, are patentable over Sibru et al. in view of Sun. Consequently, the Applicant requests that the Examiner withdraw the rejection of claims 1, 2, 4-10, 12-15, 19, and 20 under 35 U.S.C. § 103(a).

In the Office Action, the Examiner rejected claims 3, 11, and 18 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sibru et al. in view of Sun and further in view of Janz et al. (U.S. Patent No. 5,408,110). This rejection is respectfully traversed and reconsideration is requested.

Claims 3, 8, and 11 variously depend from independent claims 1 and 7 and, therefore,

include at least the aforementioned combination of elements set forth in claims 1 and 7. As described above, Sibru et al. in view of Sun fails to teach at least the aforementioned combination of claimed elements. Even if Janz et al. discloses the various elements asserted by the Examiner, Applicant respectfully submits Janz et al. fails to cure the aforementioned deficiencies of Sibru et al. in view of Sun with respect to claims 1 and 7. Specifically, Janz et al. fails to disclose growing a first GaAs layer formed on the InP layer at a temperature of between 400-450 °C and growing a second GaAs layer on the first GaAs layer at a temperature of about 600 °C. Further, Janz et al. fails to disclose a first GaAs layer formed on the InP layer at a temperature of between 400-450 °C and a second GaAs layer formed on the first GaAs layer at a temperature of about 600 °C. Accordingly, Applicant respectfully submits that claims 3, 8, and 11 are patentable over Sibru et al. in view of Sun and further in view of Janz et al. by virtue of their varied dependence from claims 1 and 7 and requests withdrawal of the present rejection under 35 U.S.C. § 103(a).

In the Office Action, the Examiner rejected claims 16 and 17 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sibru et al. in view of Sun and further in view of Shigematsu et al. (U.S. Pub. Patent App. No. US2002/0027232). This rejection is respectfully traversed and reconsideration is requested.

Claims 16 and 17 depend from independent claim 12 and, therefore, includes at least the aforementioned combination of elements set forth in claim 12. As described above Sibru et al. in view of Sun fails to teach at least the aforementioned combination of claimed elements. Even if Shigematsu et al. discloses the various elements asserted by the Examiner, Applicant respectfully submits Shigematsu et al. fails to cure the aforementioned deficiencies of Sibru et al. in view of Sun with respect to claim 12. Specifically, Shigematsu et al. fails to disclose a first GaAs layer on said top InP spacer, wherein said first GaAs layer is formed by MOCVD at a temperature between 400-450 °C and a second GaAs layer on said first GaAs layer, wherein the second GaAs layer is formed by MOCVD at a temperature of around 600 °C. Accordingly, Applicant respectfully submits that claims 16 and 17 are patentable over Sibru et al. in view of Sun and further in view of Shigematsu et al. by virtue of their dependence from claim 12 and requests withdrawal of the present rejection under 35 U.S.C. § 103(a).

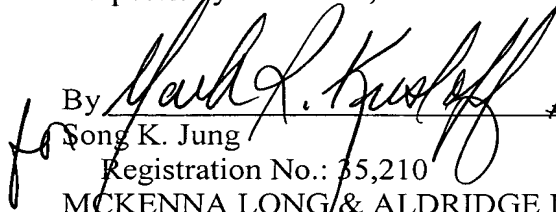
If the Examiner deems that a telephone conversation would further the prosecution of this application, the Examiner is invited to call the undersigned at (202) 496-7500.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 01-1125. Please credit any overpayment to deposit Account No. 01-1125. A duplicate copy of this sheet is enclosed.

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